

B R E V I O R A

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NOTES ON HISPANIOLAN HERPETOLOGY

1. *ANOLIS CHRISTOPHEI*, NEW SPECIES, FROM THE CITADEL OF KING CHRISTOPHE, HAITI

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Re-examination of the three specimens on the basis of which Cochran (1928 and 1941) postulated the existence of *Anolis coelestinus* in the north of Haiti near Cap Haitien has revealed that one of them (MCZ 25485) represents an undescribed species. (The other two are also not *A. coelestinus* and will be discussed at another time.)

The specimen in question is poorly preserved and was, when first examined, soft-bodied and much contorted. It has now been straightened and hardened in 90 per cent alcohol.

A majority of the scale characters usually employed in the identification of anoles do indeed appear to ally MCZ 25485, a juvenile ♀, with *A. coelestinus*.

It has smooth ventrals, somewhat squarish, juxtaposed, arranged in transverse rows, larger than the dorsal and flank scales which are relatively coarse and nearly homogeneous. The scales of two middorsal rows are very slightly larger than the adjacent scales. There are multiple keels on the scales of limbs and digits. The number of loreal rows and of rows between the supraorbital semicircles, as well as the number of rows between interparietal (pineal) scale and the supraorbital semicircles fall within the known range of *A. coelestinus*. As in the latter, the scales on the snout are small and numerous.

However, there are several features of the specimen that are difficult to reconcile with its identification as *coelestinus*.

1. *Its locality*: The Citadel of King Christophe near Cap Haitien is very remote from any other mainland record of

coclestinus, a species characteristic of the Cul-de-sac plain and Tiburon and Barahona peninsulas.

2. *Its color*: MCZ 25485 has an elaborate pattern well described by Miss Cochran (1941, p. 179). A number of specimens of undoubted *coclestinus* of similar or smaller size are available which show no trace of such a complex pattern.

3. *The digital dilations*: In the specimen these are conspicuously narrower than in typical specimens of *A. coclestinus*. The lamellae under the fourth toe are also fewer: about 19 under the second and third phalanges, (as compared with 27 in *coclestinus*), about 32 under the whole toe (as compared with 47 in *coclestinus*).

The last feature is crucial. The locality might be valid, and only appear anomalous because of insufficient collecting in the intervening area. The color also might be explained by the chance preservation of one phase in the repertoire of color changes possible in the species. However, the narrowness of the digital dilations suggested that it might not even be a member of the arboreal *chlorocyanus* group, that it might instead be a ground anole or spend a large part of its time on the ground.

The specimen was therefore subjected to very careful examination and direct comparison with *chlorocyanus* and *coclestinus* and other Hispaniolan forms. It proved to differ from all of them in a combination of significant features and seems not to be identical with any known species of anole. A specimen from the unidentified Hispaniolan collection of the American Museum of Natural History from the same locality proves to belong to the same species, which because of its occurrence in the vicinity of the famous Citadel built at the command of Henri Christophe is named:

ANOLIS CHRISTOPHEI new species

Type. MCZ 25485, ♀

Type locality. "At or near the Citadel of King Christophe, Cap Haitien, Haiti."

Collector. W. S. Eyerdam, 4. x. 1927.

Paratype. AMNH 49736, same locality, collected by W. G. Hassler 16. vi. 1935, ♀

DIAGNOSIS. An *Anolis* resembling *Anolis coclestinus* in many of its scale characters, but differing in the following: narrower

digital dilations and fewer lamellae under fourth toe; the longer legs; the presence of a distinct frontal depression; a pattern of canthal scales with the anterior four or five abruptly smaller than the posterior two or three; a long rather than a wide mental; larger sublabials; in the continuation of strongly enlarged scales of the subocular series behind the eye and in a complex color pattern of bands and lines.

DESCRIPTION. *Head:* Head scales mostly smooth, a few feebly or bluntly uniearinate; about 10 scales across snout at level of second and third canthals. A moderate frontal depression, the scales in the depression relatively small and numerous.

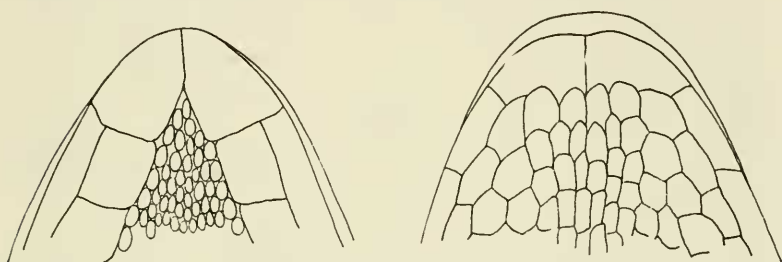


Fig. 1. Mental and neighboring scales. Left, *Anolis christopheï* n. sp.; right, *Anolis coelestinus*.

Supraorbital semicircles separated from one another by one scale and from the supraocular disks by 1-2 rows of granules. Supraocular disks consisting of about 9 to 11 keeled scales which are separated from the elongate supraciliaries by at least three rows of granules. Canthus low, canthal scales seven, the anterior four or five abruptly smaller than the posterior two or three. Loreal rows 6-7. Temporal scales granular, as small as the scales of the lower flanks, not bounded dorsally by any well-marked supratemporal line of larger scales. Supratemporal scales granular, grading into larger scales surrounding the interparietal. Interparietal scale smaller than ear opening, separated from supraorbital semicircles by 5-6 slightly enlarged scales, in contact posteriorly with granules like those of the dorsum.

Posterior frontal small, about one-third the size of the anterior supraorbital. Two scales as large or larger than the posterior frontal between the latter and the canthals.

Suboculars separated from supralabials by a single row of scales. One scale intervening between subocular series and canthal row. Six to seven supralabials to the center of the eye.

Mentals longer than wide, 2-4 scales inserted between the tips posteriorly. One sublabial on each side in contact with infralabials. Central throat scales granular, rounded.

Trunk: Middorsal scales granular, not keeled, hardly larger than the flank scales into which they grade very gradually. Ventrals in transverse rows, larger than dorsals, squarish, smooth, juxtaposed.

Limbs and digits: Hand and foot scales multicarinate, about 19 lamellae under phalanges 2 and 3 of fourth toe, about 32 under whole toe. Scales of anterior upper arm smaller than ventrals, unicarinate. Lower arm scales about as large as ventrals, tricarinate. Anterior thigh scales and lower leg scales about as large as ventrals, unicarinate.

Tail: Tail subeircular in section; verticils distinct, surmounted by 6 keeled scales, very slightly larger than the lateral caudal scales; ventrally four keeled still larger scales per verticil.

Size: Type ♀ 44 mm. Paratype ♀ 39 mm.

Color: The paratype was preserved too long in formaldehyde and is a uniform dingy brown. The pattern of the type was well described by Doris Cochran (1941), whose observations may be quoted in full: "Above mottled with dark gray and sepia; a light dorsal line with diamond-shaped dark brown patches approaching it from the side at intervals and set off by light posterior margins; a dark scalloped band on the nape of the neck with a very definite dark posterior margin which is further accented by a pale tan area directly following it; a butterfly-shaped dark spot across the occipital region; two dark bands across the supraorbital region; top and sides of snout marbled with dark and light; a wide light gray stripe leaving posterior border of ear and continuing about halfway to shoulder, at which point it abruptly ends; a light stripe issuing from beneath this ending continues above the shoulders and fades out gradually behind the axilla; limbs marbled with tan and brown; tail dark gray above, rather uniform; under surfaces of arms, legs and tail pale yellowish white, throat with pale brown reticulations over it; belly light blue green, highly iridescent; heavy brown

marblings all over lower labials and sides of chin; center of throat with two pale brown stripes marking off each side of where the gular fan will develop."

Relationships: I have provided tables of the condition in Hispaniolan species of the most commonly used scale characters of anolines in order to provide a conspectus of the genus and its close relatives in this island. I have added in the final column of the table one or two special or unique diagnostic characters for each species or species group. It should be evident from this table that the resemblances of *A. christophei* to *coelestinus* are not greater than its resemblances in some respects to other forms. The complex pattern of the type is somewhat like that of juvenile *cybotes* but there is again no sufficient warrant for inferring special relationship, since *christophei* differs sharply from *cybotes* in its squarish rather than cycloid ventrals, slenderer head, and in having the middorsals not enlarged. The elongate mentals of *christophei* are quite distinctive as compared with *coelestinus* but similar to those of *distichus*, which also has the ventrals squarish and arranged in transverse rows, but the new species clearly differs from *distichus* in the longer head and in the absence of the two parallel rows of scales on the front, in the number of scales between parietal and semicircles, etc.

From the other Hispaniolan species with ventrals arranged in transverse rows the new species differs in much the way it differs from *coelestinus*, or in other features as well. Further speculation on its relationships seems unwarranted with only two female specimens at hand and no knowledge of the species in life.

Acknowledgments: I am grateful to Mr. Charles M. Bogert for the privilege of studying the unidentified Hispaniolan collections in the American Museum of Natural History. Miss Margaret Estey made the sketches for Figure 1. Mr. A. Stanley Rand made a number of measurements and counts that have only partly been used here.

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	S V length adult ♂	lamellae 4th toe	canthals	loreal	labials to center of eye
<i>Anolis</i>					
<i>ricordii</i>	137	33	3+	4-8	9
<i>semilineatus</i>	38	20	4	4-5	5-6
<i>olssoni</i>	40	20	4	3-5	6
<i>distichus</i>	51	20	4	4	5-6
<i>cybotes</i>	67	20	3	4-10	7
<i>armouri</i>	46	18	3-4	4-6	6-7
<i>shrevi</i>	58	17	3	6	6-7
<i>monticola</i>	40	17	5	7-9	7
<i>darlingtoni</i>	42	14	5	6	6
<i>chloracanthus</i>	71	29	4	3	7-8
<i>coelestinus</i>	64	28	6	5	8-9
<i>christophei</i>	(44)*	19	7=4(+3)	6-7	6-7
<i>hendersoni</i>	46	21	6	6-7	6
<i>bahamensis</i>	46	19	7	7	6-7
<i>Xiphocercus</i>					
<i>darlingtoni</i>	75	23	4-5	2-3	7
<i>Chamaeleon</i>					
<i>wetmorei</i>	26	ca 11	2	4	9

*No adult ♂ available.

Table 1: Comparison of certain characters in Hispaniolan anoles. Data mostly from Cochran (1941). Where a single number is given, this is to be considered the mode around which variation is to be expected. Extreme variants are usually not listed. Lamellae under fourth toe are counted under phalanges II and III only.

Anolis	scales between semi-circles		inter-parietal from semi-circles		middorsal rows enlarged		ventrals	
	2-4	3-6	1	s(i) t	1	10	ki	plates + granules on flanks (a dorsal zone of enlarged keeled scales ca = ventrals)
rieordii	2-4	3-6	1	s(i) t	1	10	ki	
semilineatus	1-2	1-3	10	ki				
olsoni	1	2-3	10	ki				
distichus	0	0-1	0	si(sq) t				(snout with 2 parallel rows of squarish scales)
cybotes	0	2-3	2	si(cy)				head large, body stocky
armouri	0-1	2	(2)	si(cy)				(a strong transverse neck-fold in addition to a longitudinal fold)
shrevei	1	2	5-6	ki				
monticola	3	4	2-4	ki t				(middorsals swollen, tubercular, keeled)
darlingtoni	3	3-4	0	si(sq) t				digital lamellae very reduced
chlorocyanus	1	2	0	si(sq) t				(green tree anoles with short legs)
coelestinus	2	4	0	si(sq) t				
christopheï	1	5-6	0	s (sq) t				(mental elongate (fig. 1) + narrow digital dilations)
hendersoni	1	4	4-5	s (sq) t				dewlap small { head elongate
baharucensis	1	4-6	2-4	si t				dewlap absent
Xiphocercus darlingtoni	1	1	0	si(sq) t				(head scales large, regular, smooth, few in number)
Chamaelinorops wetmorei	3	6	6	ki				(2 lateral rows of enlarged keeled scales)
s = smooth k = keeled i = imbricate (i) = subimbricate cy = cycloid sq = square t = in transverse rows								

Table II. Comparisons of certain characters in Hispaniolan anoles. Data mostly from Cochran (1941).